CLAIMS

1. A smoking method comprising the steps of:

transporting grounded works (19) at a predetermined speed into a chamber (11) by transporting means (12), said works (19) comprising farm products, marine products and livestock products or processed foods thereof, and

applying a DC voltage or AC voltage of 7 kV to 15 kV between a pair of electrode plates (13, 14) disposed along said transporting means (12) within said chamber (11) so as to interpose the work (19) between said pair of electrode plates (13, 14), so as not to start discharge.

2. A smoking method comprising the steps of:

introducing smoke into a chamber (71) containing therein works (19) and electrode plates (73, 74) alternately arranged with each other at predetermined intervals, and

applying a DC voltage or AC voltage of 7 kV to 15 kV between said electrode plates (73, 74) or between the works (19), so as not to start discharge.

3. A smoking method comprising the steps of:

introducing smoke into a chamber (91) containing therein first and second electrodes (111, 112) arranged at predetermined intervals, and

electrically connecting first and second works (101, 102) to said first and second electrodes (111, 112), respectively, and applying a DC voltage or AC voltage of 7 kV to 15 kV between said first and second electrodes (111,

112) so as not to start discharge.

4. A smoking method of anyone of claims 1 through 3, wherein the distance between the adjacent electrode plate and work or between adjacent works is 20 mm to 100 mm.

5. A smoking apparatus comprising:

a chamber (11) having opposite ends thereof formed with an inlet (11a) and an exit (11b), respectively,

transporting means (12) moved into said chamber (11) from said inlet (11a) toward said exit (11b), and adapted to transport a plurality of works (19) spaced at predetermined intervals, the works (19) comprising farm products, marine products and livestock products or processed foods thereof,

a pair of electrode plates (13, 14) disposed within said chamber (11) at predetermined distances from the works (19), respectively, along the longitudinal direction of said transporting means (12) so as to interpose the works (19) between said pair of electrode plates (13, 14),

smoke generating means (16, 196) for generating smoke to be adhered to and infiltrated into the works (19), and for introducing the smoke into said chamber (11), and

a high voltage generating circuit (17, 127, 147, 167) adapted to apply a DC voltage or AC voltage of 7 kV to 15 kV between said pair of electrode plates (13, 14) so as not to start discharge, and adapted to ground the works (19).

6. A smoking apparatus comprising:

supporting tools (71a) disposed within a chamber (71)

and adapted to support a plurality of works (19) at predetermined intervals, respectively,

a plurality of electrode plates (73, 74) disposed between said works (19) supported by said supporting tools (71a), at predetermined distances from the works (19), respectively.

smoke generating means (16, 196) for generating smoke to be adhered to and infiltrated into the works (19), and for introducing the smoke into said chamber (71), and

a high voltage generating circuit (17, 127, 147, 167) adapted to apply a DC voltage or AC voltage of 7 kV to 15 kV between said plurality of electrode plates (73, 74) or between the plurality of works (19) so as not to start discharge.

7. A smoking apparatus comprising:

first electrodes (111) disposed within a chamber (91), and electrically connected to a plurality of first works (101), respectively,

second electrodes (112) disposed within said chamber (91), each of second electrodes disposed between said first electrodes (111) at predetermined distances from said first electrodes (111) and electrically connected to a plurality of second works (102),

smoke generating means (16, 196) for generating smoke to be adhered to and infiltrated into the first and second works (101, 102), and for introducing the smoke into said chamber (91), and

a high voltage generating circuit (17, 127, 147, 167) adapted to apply a DC voltage or AC voltage of 7 kV to 15 kV between said first and second electrodes (111, 112) so as not to start discharge.

8. A smoking apparatus of anyone of claims 5 through 7,

wherein the distance between the adjacent electrode plate and work or between adjacent works is 20 mm to 100 mm.

9. A smoking apparatus of anyone of claims 5 through 7,

wherein said high voltage generating circuit (17) includes a single transformer (17a) for boosting the commercial frequency voltage up to an AC voltage of 7 kV to 15 kV,

wherein opposite ends of a secondary coil (17c) of said transformer (17a) are electrically connected to electrode plates (13, 14) or to works (19), respectively, and

wherein one end of an intermediate tapping electric wire (47) having the other end electrically connected to the works (19) or to said electrode plates (13, 14) is electrically connected to an intermediate portion of said secondary coil (17c).

10. A smoking apparatus of anyone of claims 5 through 7,

wherein said high voltage generating circuit (127) includes identical first and second transformers (121, 122)

for boosting the commercial frequency voltage up to an AC voltage of 7 kV to 15 kV,

wherein one ends of secondary coils (121b, 122b) of said first and second transformers (121, 122) are electrically connected to electrode plates or to works, respectively, and

wherein the other ends of said secondary coils (121b, 122b) of said first and second transformers (121, 122) are electrically connected to works or to electrode plates, respectively, via common electric wire (123).

11. A smoking apparatus of claim 9 or 10,

wherein said intermediate tapping electric wire (47) or said common electric wire (123) is provided with a diode (52a, 53a) for rectifying the electric current flowing through said intermediate tapping electric wire (47) or said common electric wire (123).

12. A smoking apparatus of anyone of claims 5 through 7,

wherein said smoke generating means (16) includes

a hopper (22) for storing a smoking material (21),

a screw conveyor (23) for transporting the smoking material (21),

a burn heater (24) for incompletely burning the smoking material (21) transported by said screw conveyor (23), to thereby generate smoke, and

a smoke inlet (26a) for introducing the smoke into said chamber (11).

13. A smoking apparatus of claim 12, further comprising:

an ionizing electrode wire (39) provided across a smoke inlet (26a) for passing the smoke therethrough, said ionizing electrode wire (39) being applied with a DC voltage or AC voltage of 6 kV to 10 kV.

14. A smoking apparatus of anyone of claims 5 through 7, further comprising:

smoke circulating means (77, 97) for circulating the smoke introduced into said chamber (71, 91),

wherein said smoke circulating means (77, 97) comprises:

a circulation duct (78, 98) having opposite ends communicated to an upper part and a lower part of said chamber (71, 91), respectively, and

a fan (99) disposed within said circulation duct (78, 98) so as to draw the smoke at the upper level within said chamber (71, 91) into the upper end of said circulation duct (78, 98) and to discharge the smoke from the lower end of said circulation duct (78, 98) into said chamber (71, 91).

15. A smoking apparatus of anyone of claims 5 through 7,

wherein condiments are added into a liquid (57c) within a tank (57b) of a humidifier (57) for keeping the humidity within said chamber (11) constant.

16. A smoking apparatus of claim 6 or 7,

wherein said supporting tools (71a) and plurality of electrode plates (73, 74), or said first and second electrodes, are provided on a rack (221) to be removably moved into said chamber (71), and

wherein said supporting tools (71a) and plurality of electrode plates (73, 74), or said first and second electrodes, are electrically connected to said high voltage generating circuit via contact type electric collector (222, 242).

ABSTRACT

An inlet (11a) and an exit (11b) are formed at opposite ends of a chamber (11), and transporting means (12) is moved into the chamber from the inlet toward the outlet. The transporting means is constituted to transport a plurality of works (19) at predetermined intervals. Disposed within the chamber is a pair of electrode plates (13, 14) along the longitudinal direction of the transporting means and at predetermined distances from the works, respectively so as to interpose the works between the pair of electrode plates. Smoke to be adhered to and infiltrated into works is constitutionally generated by smoke generating means (16) and introduced into the chamber. Applied between the pair of electrode plates is a DC voltage or AC voltage of 7 kV to 15 kV by a high voltage generating circuit, and works are grounded.

This reduces the amount of electric power consumption, downsizes the apparatus, and renders the smoke to uniformly adheres to and infiltrates into works, to thereby improve the quality of smoked foods.